

(19)

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 0 941 806 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
10.01.2001 Bulletin 2001/02

(51) Int Cl.7: **B24B 37/04**, **B24B 21/04**,
B24B 49/12
// **H01L21/304**, **G01B11/00**

(43) Date of publication A2:
15.09.1999 Bulletin 1999/37

(21) Application number: **99301765.6**

(22) Date of filing: **09.03.1999**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

- **Litvak, Herbert E.**
San Jose, California 95120 (US)
- **Surana, Rahul K.**
Fremont, California 94539 (US)
- **Jew, Stephen C.**
Sunnyvale, California 94087 (US)
- **Pecen, Jiri**
Palo Alto, California 94306 (US)

(30) Priority: **10.03.1998 US 38171**

(71) Applicant: **LAM Research Corporation**
Fremont, California 94538-6517 (US)

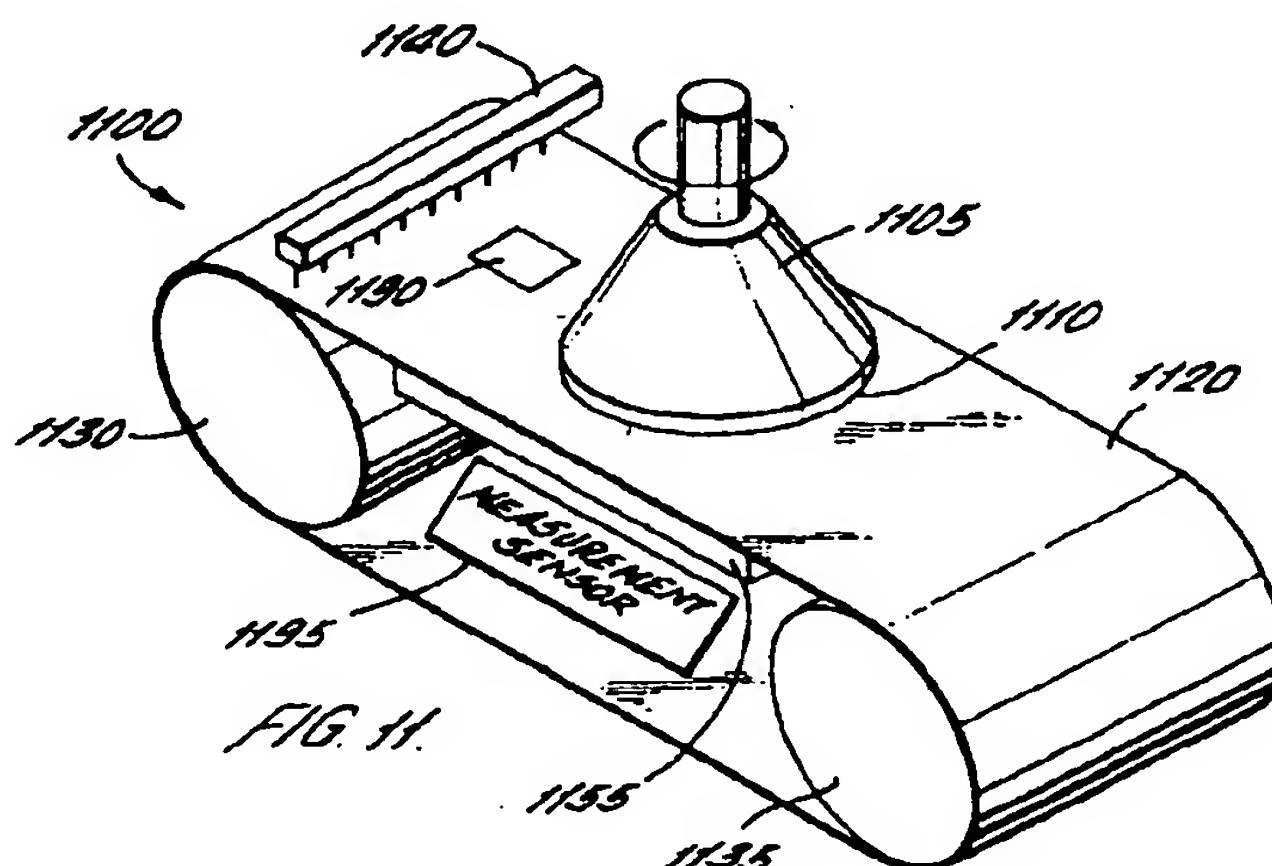
(74) Representative: **Bucks, Teresa Anne et al**
BOULT WADE TENNANT,
Verulam Gardens
70 Gray's Inn Road
London WC1X 8BT (GB)

(72) Inventors:
• **Bajaj, Rajeev**
Fremont, California (US)

(54) Wafer polishing device with moveable window

(57) A wafer polishing device with movable window can be used for in-situ monitoring of a wafer during CMP processing. During most of the CMP operation, the window remains below a polishing surface of a polishing device to protect the window from the deleterious effects of the polishing process. When the window moves into position between the wafer and a measurement sensor, the window is moved closer to the polishing surface. In

this position, at least some polishing agent collected in the recess above the window is removed, and an in-situ measurement can be taken with reduced interference from the polishing agent. After the window is positioned away from the wafer and measurement sensor, the window moves farther away from the wafer and polishing surface. With such a movable window, the limitations of current polishing devices are overcome.



EP 0 941 806 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 30 1765

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.6)
A	EP 0 824 995 A (APPLIED MATERIALS INC) 25 February 1998 (1998-02-25) * column 5, line 34 - column 9, line 23; figures 2-4 *	1,2, 16-19,35	B24B37/04 B24B21/04 B24B49/12 //H01L21/304, G01B11/00
A	US 5 609 511 A (MORIYAMA SHIGEO ET AL) 11 March 1997 (1997-03-11)		
			TECHNICAL FIELDS SEARCHED (Int.CI.6)
			B24B G01B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17 November 2000	Examiner Eschbach, D
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1603 03/82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 99 30 1765

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

17-11-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0824995 A	25-02-1998	US 5893796 A	13-04-1999
		JP 10083977 A	31-03-1998
		SG 54539 A	16-11-1998
		US 6045439 A	04-04-2000
US 5609511 A	11-03-1997	JP 7285050 A	31-10-1995

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

THIS PAGE BLANK (USPTO)